

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* JON P. WAGNER,  
YEPING CAI, AARON L. WAGNER, and  
MICHAEL W. BALAKOS

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Appeal 2006-2735  
Application 10/758,552  
Technology Center 1700

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Decided: January 31, 2007

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Before THOMAS A. WALTZ, JEFFREY T. SMITH, and  
LINDA M. GAUDETTE *Administrative Patent Judges*.

SMITH, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal involves claims 1-8, 11-17, 19 and 20, the only claims pending in this application. We have jurisdiction under 35 U.S.C. § 134.<sup>1</sup>

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<sup>1</sup> An Oral Hearing took place on November 14, 2006.

We AFFIRM.

### BACKGROUND OF THE INVENTION

Appellants' invention relates to a catalyst composition for use in water gas shift reactions. The claimed invention requires a catalyst to include a primary transition metal, a transition metal promoter, and a support material comprising cerium oxide. Claim 1, as presented in the Brief, appears below:

1. A catalyst suitable for production of hydrogen, said catalyst consisting essentially of:
  - a. a primary transition metal selected from the group consisting of Group VIII metal, a Group IB metal, cadmium and combinations thereof, said primary transition metal being present at a predetermined concentration [Primary TM];
  - b. a transition metal promoter present at a predetermined concentration [Promoter] selected such that a ratio defined by [Primary TM]:[Promoter] is greater than 1:1; and
  - c. a support material comprising cerium oxide and an additive selected from the group consisting of gadolinium, samarium, zirconium, lithium, cesium, lanthanum, praseodymium, manganese, titanium, tungsten, neodymium, and a combination thereof,

wherein said transition metal and said promoter are combined with said support material to form said catalyst.

The Examiner relies on the following references in rejecting the appealed subject matter:

Igarashi	WO 00/54879	Sep. 21, 2000
Chintawar	WO 00/66486	Nov. 9, 2000
Igarashi (as translated)	EP 1 161 991 A1	Dec. 12, 2001
Silver	US 6,455,182 B1	Sep. 24, 2002

The Examiner has entered the following grounds of rejection:

Claims 1-8, 11-13, 19 and 20 are rejected under  
35 U.S.C. § 103(a) as obvious over Igarashi and Silver;<sup>2</sup> and

Claims 14-17 are rejected under 35 U.S.C. § 103(a) as obvious over  
Igarashi, Silver and Chintawar (Answer 3-7).

Rather than reiterate the conflicting viewpoints advanced by the  
Examiner and the Appellants regarding the above noted rejections, we make  
reference to the Answer (mailed February 1, 2006) for the Examiner's  
reasoning in support of the rejections, and to the Brief (filed December 30,  
2005) for Appellants' arguments thereagainst. Our reasons follow.

#### OPINION.

Claims 1-8, 11-13, 19, and 20 stand rejected under 35 U.S.C. § 103(a)  
as obvious over Igarashi and Silver. We select claim 1 as representative of  
the rejected claims.

The Examiner asserts that Igarashi discloses catalysts suitable for use  
in water gas shift reactions and the production of hydrogen. The catalyst  
comprises platinum as a primary transition metal and rhenium as a transition  
metal promoter that are supported on a zirconia metal oxide carrier (Answer  
3-4). The Examiner found that the Igarashi reference describes an example  
that includes platinum and rhenium in amounts that meet the presently  
claimed invention (Answer 4). The Examiner asserts that the invention of  
Igarashi differs from the claimed invention in that the support material is not  
described as comprising cerium oxide and an additive material such as

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<sup>2</sup> When discussing the Igarashi reference the Examiner relies on  
EP 1 161 991 document as an English-language equivalent of WO 00/54879.

zirconium dioxide (Answer 4). The Examiner cites the Silver reference for describing improved catalyst compositions comprising cerium oxide and zirconium oxide support material (Answer 5). Silver, like Igarashi, discloses catalyst compositions useful in water gas shift reactions and in the production of hydrogen. Silver discloses that metals such as platinum and rhenium are suitable for being supported on the described catalyst support material (Silver, col., 6, ll. 20-31).

Appellants argue that neither Igarashi, nor Silver taken alone or in combination teach or suggest all the limitations of the claimed invention. Specifically, Appellants argue that Igarashi provides a closed recitation of possible metal oxide supports for use in the catalysts which exclude ceria (Br. 3). Appellants further argue that the Silver reference does not suggest that combinations of metals could be used on the described support material (Br. 4).

Appellants' arguments are not persuasive. The Examiner did not rely on the Igarashi reference for describing the catalyst support material. The Silver reference has been relied upon for the disclosure of the catalyst support material. The Igarashi reference is evidence that persons of ordinary skill in the art would have recognized that a catalyst could comprise mixtures of platinum and rhenium on the same support material. The Silver reference is evidence that a person of ordinary skill in the art would have reasonably expected that catalysts comprising platinum and rhenium would have been suitable for support on an oxide material comprising cerium and zirconium (see Silver, col. 6, ll. 20-31). Further, the idea of using mixtures of the metal catalysts on the support material described in the Silver

reference flows logically from their having been individually taught, thus establishing a prima facie case of obviousness. *See In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980). In light of the foregoing and for the reasons expressed in the Answer, it is our determination that the Examiner has established a prima facie case of obviousness with respect to the argued claims on appeal.

Appellants argue that the Examiner has used impermissible hindsight in combining the teachings of Igarashi and Silver (Br. 5). This argument is not persuasive for the reasons set forth above and in the Answer.

Claims 14-17 stand rejected under 35 U.S.C. § 103(a) as obvious over the combined teachings of Igarashi, Silver, and Chintawar. In response to this ground of rejection, Appellants presented arguments directed towards claims 13-17 and 20 (Br. 6). The arguments presented by Appellants are substantially the same as those presented in the rejection discussed above. Appellants have not presented arguments regarding the Examiner's motivation for combining the teachings of Igarashi, Silver, and Chintawar. In support of the stated rejection, the Examiner has presented factual determinations regarding the suitability of combining the teachings of Igarashi, Silver, and Chintawar. (See Answer 6-7). Thus, for the reasons presented above in our discussion of the rejection of claims 1-8, 11-13, 19, and 20 and the reasons presented by the Examiner, we will uphold the rejection of claims 14-17.

#### CONCLUSION

The prior art rejections of claims 1-8, 11-17, 19 and 20, have been affirmed.

Appeal 2006-2735  
Application 10/758,552

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136 (a)(1)(iv)(2006).

AFFIRMED

tf/hh

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